

Plymouth Foam Incorporated

Plymouth, WI

Most people are familiar with the white foam packaging that surrounds new TVs and other products. They might be surprised to learn that the same foam may be an integral part of their home or office—and that it may be made out of recycled material.

The foam, known as expanded polystyrene or EPS, starts off as small beads that are expanded and fused, either into a precise shape or a large block that can then be cut. It is light, durable and a good insulator. Plymouth Foam Incorporated, a Wisconsin-based company founded in 1978, has helped lead the way in finding new uses for EPS—and in finding ways to recycle it.

“All of [our] products are touched by recycled material,” Hassel said.

“EPS is such a versatile material, we can’t even put enough effort behind all the ideas [for using it],” said company president Dave Bolland.

The company’s 200 employees, located at four facilities in Wisconsin, Minnesota and Ohio, produce a variety of products for markets in the United States and Canada using EPS and soft foam. These include protective packaging, foam components that are fully integrated into products (such as insulating liners in toilet tanks) and several types of building materials. Its PaceMaker Building Systems line, for example, includes foam-based, laminated panels that builders can quickly assemble into walls and roofs.

“All of those products are touched by recycled material,” said company vice president Jason Hassel. The products may contain anywhere from 10–100% recycled content, and some have certain characteristics that only recycled content can provide.

The company gets the recycled foam from a variety of sources. Some is scrap from its own cutting of EPS blocks into desired shapes, or scrap from large



Quick facts: Plymouth Foam

Recycled materials used: scrap or used expanded polystyrene (EPS) foam

Recycling manufacturing start date: 1978

Number of employees: 120 in Wisconsin; 200 overall

Contact: 1.800.669.1176

Web site: www.plymouthfoam.com

customers who do their own cutting.

Some local businesses and individuals bring their foam to the company’s plant for recycling, and Hassel, and Wisconsin plant manager Steinpreis said they would like to see more of this in the future.

“We could grow into that recycling opportunity and we’d certainly like to,” Steinpreis said. “It helps us and it helps the community.”

The main challenge, they said, is figuring out how to get the foam back to the plant in a clean, usable form. “We have the technology to be able to handle the material as it comes back,” Bolland said. “It’s turning on the spigot. ... That’s the only major hurdle.” ■



Workers install Structural Insulated Panels (SIPs), made from rigid EPS foam sandwiched between two laminated board layers, on a roof. Photo courtesy Plymouth Foam.



Printpack Inc.

Rhinelander, WI

Can the wrapper from an ice cream bar be used to produce the lawn furniture you sit on to enjoy a summertime treat? The answer is yes, and Printpack Inc. of Rhinelander helps make it possible.

“We are a manufacturer of flexible packaging,” said Randy Delap, plant services manager at the Rhinelander facility, which is one of 22 Printpack plants around the world. The flexible packaging—used to cover products like candy bars and ice cream sandwiches—is made from polypropylene or polyethylene plastic film.

While new material is usually used to make the packaging, Delap said the company is able to recycle scrap film leftover from the manufacturing process. The film can be used in products such as plastic lumber, garden benches, lawn furniture and house insulation. In 2005, the Rhinelander plant recycled 500,000 pounds of the scrap film, along with an additional 750,000 pounds of other packaging materials, such as cardboard.

Delap said demand for the scrap film has varied over the 15 years the plant has been recycling it. One major factor has been changing oil prices, which affect the cost of plastics. “Right now, the market is

Quick facts: Printpack Inc.

Materials recycled: scrap plastic film used in packaging, other packaging materials

Recycling start date: early 1990s

Number of employees: 140 in Rhinelander; 4,000 overall

Contact: Randy Delap, rdelap@printpack.com

Web site: www.printpack.com

really strong because of oil prices,” he said. “We have no problem getting rid of it.” In the past, he said, Printpack would give the film away, but now the plant is able to charge a small amount for it.

“Right now the market [for recycled plastic film] is really strong because of high oil prices,” Delap said.

In addition to price fluctuations, Delap said storing the scrap film can be a challenge, since most customers won’t take less than a full truckload. The Rhinelander plant is considering purchasing a machine that could melt the scrap into a brick form, which would be easier to store and transport.

In the future, Delap said, it might be possible to incorporate recycled material into the flexible packaging. “We would be interested if the film industry would start making film with recycled material,” he said.

Along with the film and other packaging materials, Delap said the Rhinelander plant is able to distill and reuse the solvents from the inks used to print packaging. Overall, he said, the recycling efforts are generating \$50,000 to \$60,000 a year in revenue and saving on tipping fees. “Every penny counts,” he said, adding that the environmental benefits are also important. “It’s the right thing to do.” ■



Printpack uses rolls of plastic film to produce “flexible packaging” for candy bars and other products; it recycles the scrap film. Photo courtesy Printpack Inc.

Sadoff & Rudoy Industries, LLP

Fond du Lac, WI (headquarters)

“We’re the original recyclers,” said Tom Knippel, industrial marketing manager for Sadoff & Rudoy Industries, describing the scrap metal industry. “Metal recycling has been happening for thousands of years, all the way back to the Bronze Age.”

Sadoff & Rudoy Industries, LLP is a scrap metal processor that takes old or leftover metal objects and prepares them for use in the melt industry.

“We purchase scrap metal from manufacturers, auto salvage dealers and a network of scrap metal dealers across the country from coast to coast,” Knippel explained. “Our main process is to prepare these scrap metals for melt operations in steel mills, foundries and smelters.”

The company processes iron; steel; and nonferrous metals like copper, aluminum, brass and stainless steel. In addition, Sadoff provides architectural hardware and hollow metal doors to the building industry.

The markets are strong these days for scrap metal, according to Knippel. “Our customers for steel and iron are primarily in the Midwest,” he said. “Our non-ferrous customers are all across the U.S. and also in India and China.”

Sadoff has been in business under its current ownership since 1946. “We’re a third-generation, family-owned company,” Knippel said. The company has approximately 300 employees spread across 10 locations, nine in Wisconsin and one in Nebraska.

Quick facts: Sadoff & Rudoy

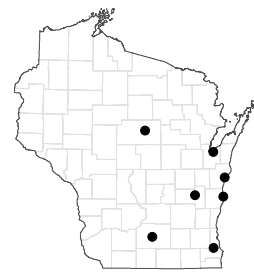
Recycled materials used: scrap metals, including aluminum, brass, iron, steel

Recycling start date: 1946

Number of employees: 300

Contact: Tom Knippel, 920.921.2070

Web site: www.sadoff.com



Workers load processed scrap for foundry deliveries. Photo courtesy Sadoff & Rudoy Industries.

Knippel said working in the industry can be somewhat challenging. He cited recycling items, like automobiles, that are not designed for recycling as an example. Airbags and mercury switches are two examples of the items that need to be removed from cars before they can be processed, he said.

**“We’re the original recyclers,”
Knippel said.**

Knippel said another challenge is the heavy regulation of the scrap metal industry. To help meet the environmental needs of the state, he said, Sadoff is trying to work with state regulators by signing a charter with the Department of Natural Resources’ Green Tier program, a partnership in which businesses sign agreements with the DNR to protect the environment in exchange for more flexibility with certain regulations. The company has received (or is in the process of receiving) several industry-based certifications for its environmental and health and safety practices.

“We’re committed to be the best we can be,” Knippel said. ■



Saint-Gobain Containers

Burlington, WI

“One of the neat things about glass is it can be melted and reformed an infinite number of times,” said Dana Kratz, human resources manager for Saint-Gobain Containers in Burlington.

The Burlington plant has been incorporating recycled glass into its bottles since it opened in 1966. Saint-Gobain has about 4,500 employees nationwide, with headquarters in Muncie, IN. Its parent company is the largest glassmaker in Europe, having gotten its start with a charter from Louis XIV to make mirrors for his palace at Versailles.

Saint-Gobain's Burlington plant employs 290 people and uses 40,000 tons of recycled glass each year.

The Burlington plant's 290 employees make bottles for well-known customers like Anheuser-Busch and Kikkoman. Kratz said the bottles typically have 15 to 20% recycled content.

Unlike other recyclable materials, such as plastic, the raw materials in glass (primarily silica sand) are inert and don't break down over time. While recycled glass is not always cheaper than new, it has other advantages—such as being easier to melt and thus saving on energy costs.

Quick facts: Saint-Gobain

Recycled materials used: glass

Recycling start date: 1966

Number of employees: 290 at Burlington plant; about 4,500 around the U.S.

Contact: Dana Kratz, 262.763.9161, dana.a.kratz@saint-gobain.com

Web site: www.sgcontainers.com



Glass bottles are manufactured and filled at the Saint-Gobain plant in Burlington. Recycled glass is incorporated into the containers. Photo courtesy Saint-Gobain Containers.

Kratz said the plant uses about 40,000 tons of recycled glass each year, nearly 90% of which comes from curbside recycling programs (the rest comes from recycling done within Saint-Gobain's 14 U.S. manufacturing plants). Glass processors sort the glass by color, clean it to remove contaminants such as metal caps, and crush it. The resulting material is known as cullet, and is melted and formed into bottles along with new glass.

Getting a sufficient amount of clean cullet can sometimes be a challenge, according to Kratz. “That is one of our limiting factors,” he said. In addition to the problem of contamination from metal caps or other foreign objects, the bottlemaker must ensure that colors are consistent in the cullet—for instance, the brown glass can't have too much green, or there could be a noticeable discoloration in the finished product.

Since glass can always be reused, recycling and removing caps and other contaminants is important, Kratz said. “There's no reason for glass to end up in the landfill,” he said. ■

Samuels Recycling Company

Madison, WI (headquarters)

Samuels Recycling Company recycles metal. Lots of it. “Our volume is 50 to 100% higher today than 10 years ago,” said president Mike Spear.

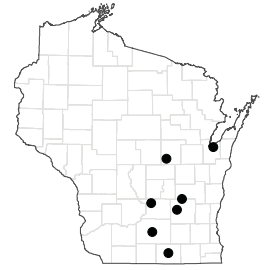
Since 1896, the company has been recovering scrap metals such as iron, steel, aluminum, brass and zinc from old automobiles, foundries, industrial scrap, old pipes and farming equipment.

“We break down products into forms of metal that can be melted by somebody else,” Spear said. The company breaks down its products by using electromagnets, which detect differences in metal conductivity (eddy currents) to separate the components. So when shredding a one-ton car, for example, the electromagnets can pull out about 1,500 pounds of iron and steel.

Once materials are separated, the company sells them to foundries throughout Wisconsin, and to steel mills in Indiana, plus other eastern states and Canada. Samuels Recycling also has overseas markets in China, India, South Korea and Japan. “We ship several thousand tons of iron and steel a month,” Spear said. “We export at least a million pounds to China alone. We’ve evolved into a global market. Now we look past the coasts. We’re looking



Scrap metal is stockpiled and sorted at one of Samuels Recycling's locations. Photo courtesy Samuels Recycling Company.



Quick facts: Samuels Recycling

Recycled materials used: scrap metal, including iron, steel, aluminum, brass, zinc

Recycling start date: 1896

Number of employees: 250

Contact: Gary Bachus, 608.241.1571

Web site: www.samuelsrec.com

to Asia and South America.”

Samuels Recycling is a family-owned business that employs 250 people at seven facilities in Madison, Green Bay, Janesville, Waupaca, Beaver Dam, Waupun and Portage.

“Our volume is 50 to 100% higher today than 10 years ago,” Spear said.

Spear said the company faces several challenges, one of which is consolidation in the metals industry. “There are larger companies buying up smaller ones. As a result, we have fewer people to sell to,” he said. Other challenges include transportation and exportation of materials by rail, truck or sea, due to transportation costs and limited water access.

The company demonstrated its forward thinking by joining the Wisconsin Department of Natural Resources’ Green Tier program, through which qualified businesses and associations make legal commitments to superior environmental performance through contracts and charters with the DNR. In exchange, these businesses are given incentives to achieve their environmental goals.

“People should know about our commitment to this business and industry,” Spear said. “We are long-term thinkers. We continually educate ourselves.” ■



SCA Tissue

Menasha and Neenah, WI

“**W**hat some people view as waste, other people view as valuable raw material,” said Loreen Ferguson, recycle mill manager at SCA North America’s Menasha plant.

In this case, that raw material is paper that often ends up in the trash. “There’s still a fairly substantial amount of paper that’s in the municipal waste stream,” Ferguson said, estimating that paper products represent up to 21% of municipal garbage. Most of that paper could be used, she said.

SCA’s Menasha plant uses 1,000 tons of recycled fiber per day in its operations.

SCA, a Swedish-owned company whose Midwest Region headquarters is in Wisconsin, produces tissue products such as paper towels and napkins for the away-from-home market, which includes offices, restaurants and hospitals. All products are made from 100% recycled fiber. The company has about 53,000 employees worldwide, with approximately 1,000 in Wisconsin.

Ferguson said the Menasha operation alone uses 1,000 tons of recycled paper a day, including newspaper, card-

Quick facts: SCA Tissue

Recycled materials used: 20 grades of paper, including office paper, newspaper, old corrugated cardboard

Recycling start date: 2001 under SCA; Menasha plant has used recycled fiber since 1918

Number of employees: 53,000 worldwide; 1,000 in Wisconsin

Contact: Pat Bauman, 920.727.8791

Web site: www.sca.com

board and office paper—about 20 different grades in all. The plant buys recovered paper from about 50 different suppliers, and Ferguson said the company is always looking for additional sources, especially from Wisconsin.

Paper arrives at the Menasha plant in large bales, which are fed into a pulper and mixed with water until the material has the consistency of oatmeal. Next, it goes through cleaning machines that remove contaminants such as staples, and fine mesh screens to remove other contaminants. After further processing, the pulp goes to four tissue machines, which produce giant rolls of paper. These are then sent to a converting plant in Neenah, which processes the big rolls into consumer products.

“One of the biggest challenges is from the amount of contaminants present in the paper,” Ferguson said. Especially problematic are glues, adhesives and other “stickies,” including the “booger” glue used to attach credit cards in mailings. “Stickies are probably our biggest problem,” she said, noting it takes large capital investments in equipment to handle the contamination.

Despite such challenges, Ferguson said SCA is continuing to invest in its Wisconsin operations. “We’re very proud of being an environmentally conscious company,” she said. “We are dedicated to recycling and doing what we can for the community and the environment.” ■



SCA’s Menasha plant manufactures paper for napkins, paper towels and other products using 100% pre- and post-consumer recycled fiber. Photo courtesy SCA Tissue.

Veridian Homes

Madison, WI



Buy a new house from Veridian Homes, and you can thank recycling for the green lawn you see out front.

The Madison-area builder, which has won several awards for its environmental initiatives, has made a push in recent years to recycle more materials from its construction sites. That includes wood scrap, which is composted by the Bruce Company, a local landscaper. The compost is mixed with seed, fertilizer and stabilizing polymers and applied to lawn sites using a blower truck.

“It makes [economic] sense to go down the recycling road,” Zajicek said.

“We’re making a difference, and we’re making a difference with ourselves,” said Veridian vice president for construction Gary Zajicek. He said that there’s approximately a one-for-one trade at each home between the wood scrap and compost. Veridian has also worked to reduce the amount of wood scrap each project generates by using advanced framing and optimal engineering techniques, he said.

Zajicek said the recycling initiatives, which also include vinyl siding, concrete and cardboard, help Veridian’s bottom line. “We’re saving a lot on landfill



A worker recycles cardboard at one of Veridian’s building sites. Veridian also recycles wood, vinyl siding and other materials from new home construction. Photo courtesy Veridian Homes.

costs,” he said, adding that there’s a “snowball effect” for society when communities don’t need to create as much landfill space. “It makes great sense to go down the recycling road,” he said.

The demand is “quite high” for most of the materials Veridian is recycling, Zajicek said, though the market for vinyl siding scrap has been slower to develop. With help from a 2004 DNR Solid Waste Reduction and Recycling Demonstration grant, Veridian has worked with the Vinyl Recycling Institute to develop its vinyl recycling program, and is working with WasteCap Wisconsin to find more markets for the material.

“I think the vinyl could be a bigger market,” Zajicek said, adding that it will help if other builders start recycling the material as well.

Zajicek said recycling is a major commitment for Veridian and all of its contractors. “[The trades] are right there with us with this recycling effort,” he said. Veridian has 12 site managers, each coordinating recycling efforts, and individual contractors are involved with recycling the materials they use. “It’s very important to us to be very conscious and active in recycling efforts,” Zajicek said. ■

Quick facts: Veridian Homes

Materials recycled: wood scrap, vinyl scrap, cardboard, concrete

Recycling start date: 2003

Number of employees: 100-110, plus contractors

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Web site: www.veridianhomes.com



Wausau Tile

Wausau, WI

When Columbia University approached Wausau Tile in 1999 with the idea of putting glass and concrete together, the company's staff probably never dreamed the result would be a product that garners \$1 million a year in sales. The key component in this valuable mix is recycled glass.

"We recognized that using recycled materials was the way to go these days," said Rodney Dombrowski, Wausau Tile's commercial division manager. "We thought it was a good risk to take with Columbia. We're pretty pleased now."

"We recognized that using recycled materials was the way to go these days," Dombrowski said.

They ought to be. Today, Wausau Tile's glass and concrete products are being used in several large commercial building projects across the country.

"Trump Towers used our recycled glass tiles for their balconies," Dombrowski said, "and the D.O.T. [Department of Transportation] building in Las Vegas used our recycled glass terrazzo tiles on its floors."

Wausau Tile's 330 employees incorporate 100% recycled glass into several of the company's products, including tiles, pavers, planters, exterior tables and benches, and waste receptacles. As an end user, Wausau Tile purchases about 200 tons of glass annually from suppliers in Arizona, Indiana and Tomahawk, WI.

The Tomahawk facility buys much of its glass supply from the Langlade County landfill. It also gets glass through Waste Management, Inc., which does curbside recycling collections in Green Bay, La Crosse and other parts of the state.

Employees at the Tomahawk facility hand-sorts

Quick facts: Wausau Tile

Recycled materials used: glass

Recycling start date: 1999

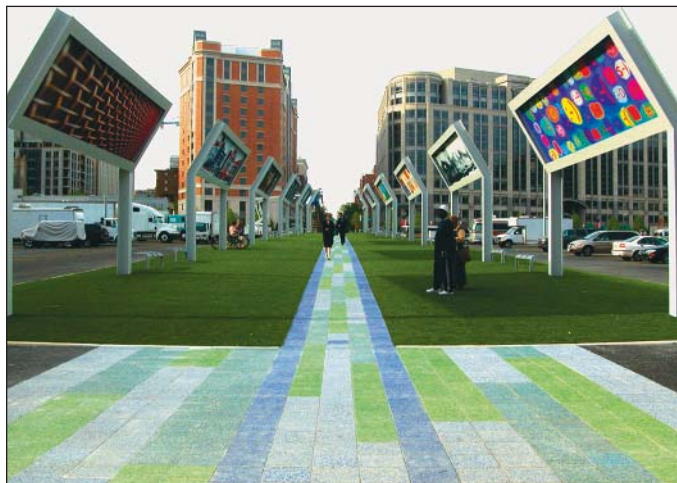
Number of employees: 330

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Web site: www.wausautile.com

the glass into the pure colors that Wausau Tile needs. "We don't use mixed colored glass," Dombrowski explained. He said Wausau Tile needs pure, clear glass colors, such as all blue or all green. "The recycled glass we're using really makes our products very aesthetically pleasing," he said. "With our terrazzo tiles and pavers, we use aggregates out of good 'ol Mother Earth."

Unlike other products manufactured with recycled materials, Dombrowski said, Wausau Tile products have a high rate of visibility. "For the life of a building, people are going to be looking at our product, walking on it. It will be seen all the time." ■



Wausau Tile's pavers, made with recycled glass, were recently used in this Washington, D.C. Art Walk. Photo courtesy Wausau Tile.

Wisconsin Paperboard Corp.

Milwaukee, WI



“If you’re manufacturing paperboard, you’re dealing with recycled fiber,” said Robert Domrois, controller at Wisconsin Paperboard Corp.’s Milwaukee facility.

The Milwaukee mill has been using recycled fiber in its manufacturing process since it opened in 1911. Since 1976, it has done so under the ownership of The Newark Group, a Cranford, N.J.-based company with operations in North American and Europe. All of The Newark Group’s products, including those at Wisconsin Paperboard, are made from 100% pre- and post-consumer recycled fiber.

“If you’re manufacturing paperboard, you’re dealing with recovered fiber,” Domrois said.

The 160 employees at the Milwaukee plant, one of 11 Newark Group paperboard mills around the country, produce paperboard for a variety of uses and products, including cardboard tubing, folding cartons and other types of packaging (cereal boxes are an example of food packaged in paperboard), and store displays. Together, the 11 paperboard mills produce more than 1 million tons of 100% recycled paperboard each year.

Domrois said recycled paper content is common

Quick facts: WI Paperboard Corp.

Recycled materials used: pre- and post-consumer paper and cardboard

Recycling start date: 1911; since 1976 under The Newark Group

Number of employees: 160 at Milwaukee plant

Contact: paperboardmills@newarkgroup.com

Web site: www.newarkgroup.com



Wisconsin Paperboard Corporation's Milwaukee plant produces paperboard for a variety of uses. Photo courtesy Wisconsin Paperboard Corp.

and expected in some products, such as cereal boxes. “People have gotten used to having recycled fibers in those products,” he said. When The Newark Group looks to new markets for its products, however, their 100% recycled content is often a selling point. “It’s more in the new markets that we develop that we’re trying to sell the benefits to our customers and potential customers,” he said.

Wisconsin Paperboard gets the recycled fiber for its products from both residential and business waste streams. “We get quite a bit of the curbside collection [of paper and cardboard] from Milwaukee and surrounding counties,” Domrois said. Stores and large businesses who bale their own cardboard for recycling also supply the Milwaukee plant. The Newark Group has a separate division (including a plant in Green Bay) that works to recover paper and cardboard in the waste stream and supplies the paperboard mills with much of their raw materials.

“Our entire company is based on dealing with recycled fiber as its raw material,” Domrois said. “That’s been our philosophy and the way we grew up.” ■

